



# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P1896PC00		<b>FOR FURTHER ACTION</b>		See Form PCT/PEA416
International application No. PCT/FI2004/000691		International filing date (day/month/year) 17.11.2004		Priority date (day/month/year) 18.11.2003
International Patent Classification (IPC) or national classification and IPC G01W1/08				
Applicant VAISALA OYJ				
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 5 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>				
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>				
Date of submission of the demand  02.05.2005		Date of completion of this report  23.01.2006		
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016		Authorized Officer Passier, M Telephone No. +31 70 340-4872 		

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

88/579676

International application No.  
PCT/FI2004/000691

1AP2005 100 18 MAY 2006

**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

**Description, Pages**

1-20 as originally filed

**Claims, Numbers**

1-12 received on 02.05.2005 with letter of 28.04.2005

**Drawings, Sheets**

1/2, 2/2 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/FI2004/000691

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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**1. Statement**

Novelty (N)	Yes: Claims	1-12
	No: Claims	
Inventive step (IS)	Yes: Claims	1-12
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-12
	No: Claims	

**2. Citations and explanations (Rule 70.7):**

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.

PCT/FI2004/000691

**Re Item V**

**1. Prior Art**

The following documents are referred to:

- D1:** JUNHONG WANG ET AL: "Corrections of humidity measurement errors from the Vaisala RS80 radiosonde - application to TOGA COARE data"
- D2:** TURNER D D ET AL: "Dry bias and variability in Vaisala RS80-H radiosondes: the ARM experience"
- D3:** B. M. LESHT, S.J. RICHARDSON: "The Vaisala RS-80H Radiosonde Dry-Bias Correction Redux"

**2. Technical Field**

The invention relates to correcting humidity measurement results of a radiosonde.

**3. Novelty and Inventive Step (Article 33(1),(2),(3) PCT)**

1. The subject-matter of **claims 1, 9 and 11** is novel and involves an inventive step for the following reasons:
2. Document **D1** is considered as the closest state of the art. This document describes how a humidity value at a certain ambient temperature can be obtained from the ambient temperature and the humidity value at calibration temperature. In this way, a temperature dependence correction model is applied to the humidity at calibration temperature. Furthermore, a temperature correction is described, which corrects humidity measurements during the first phases of flight for the effect of heating the sensor arm prior to launch of the radiosonde.
3. The present invention as it is defined in the independent **claims 1, 9 and 11** differs from **D1** essentially in that it defines calculating error-corrected humidity as a function of a calculated humidity sensor temperature  $T_u$ , the measured environmental temperature  $T_T$  and the measured environmental humidity  $U_m$ . The humidity sensor temperature  $T_u$  is calculated from differences  $\Delta T$  between the measured environmental temperature  $T_T$  and humidity sensor temperature  $T_u$ , said differences  $\Delta T_u$  being predefined and corresponding to at least one environmental conditions parameter value.
4. By correcting the measured humidity in this way, account is being taken of the fact that the humidity sensor temperature might deviate from the environmental temperature due to the effect of radiative heat exchange.

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

International application No.

**PCT/FI2004/000691**

5. Hence, the technical problem solved by the present invention is improving the accuracy of the humidity measurements.
6. None of the other available documents disclose or suggest this way of correcting a measured environmental humidity. **D2** discusses calibration of radiosondes by scaling moisture profiles. **D3**, like **D1**, describes how a humidity value at a certain ambient temperature can be obtained as a function of that ambient temperature and the humidity value at calibration temperature.
7. **Claims 2-8, 10 and 12** are dependent on **claims 1, 9 and 11**, respectively, and as such also meet the requirements of the PCT with respect to novelty and inventive step.
4. **Industrial Applicability (Article 33(1),(4) PCT)**  
The subject-matter of **claims 1-12** is industrially applicable.

**Other**

Documents **D1-D3** are not addressed in the description (R.5.1(a)(ii) PCT).